What is claimed is:

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1. A field emitter display device, comprising:

at least one emitter having an implanted oxide layer that releases electrons at a predetermined energy level.

2. The device of claim 1, wherein the implanted oxide layer inhibits outgassing that includes moisture.

3. A field emitter display device, comprising:

at least one emitter having an implantation that releases electrons at a predetermined energy level, wherein the implantation lowers the potential barrier to enhance the releasing of electrons.

4. The device of claim 3, wherein the implantation is a layer underneath the surface of the at least one emitter.

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5. A field emitter display device, comprising:

at least one emitter having an implantation that emits electrons at a predetermined energy level, wherein the implantation affects the lowering mechanism so as to enhance the emission of electrons.

6. The device of claim 5, wherein the implantation is a layer underneath the surface of the at least one emitter.

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7. A field emitter display device, comprising:

at least one emitter having an implantation that releases electrons at a predetermined energy level, wherein the implantation affects the image force so as to enhance the releasing of electrons.

8. The device of claim 7, wherein the implantation is a layer underneath the surface of the at least one emitter.

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9. A field emitter display device, comprising:

at least one emitter having an implantation that emits electrons at a predetermined energy level, wherein the implantation enhances the Schottky effect so as to enhance the emission of electrons.

10. The device of claim 9, wherein the implantation is a layer underneath the surface of the at least one emitter.

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11. A field emitter display device, comprising:

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at least one emitter having an implantation that releases electrons at a predetermined energy level, wherein the implantation decreases the dielectric effect of the at least one emitter to enhance the releasing of electrons.

12. The device of claim 11, wherein the implantation is a layer underneath the surface of the at least one emitter.

13. A field emitter display device, comprising:

at least one emitter having a layer that releases electrons at a predetermined energy level, wherein the layer enhances the releasing of electrons and the layer limits the outgassing so as to inhibit degradation of the at least one emitter.

14. The device of claim 13, wherein the layer is embedded in the surface of the at least one emitter.

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15. A field emitter display device, comprising:

at least one emitter having a layer that releases electrons at a predetermined energy level, wherein the layer lowers the potential barrier to enhance the releasing of electrons and the layer limits the outgassing so as to inhibit degradation of the at least one emitter.

16. The device of claim 15, wherein the layer is embedded in the surface of the at least one emitter.

17. A field emitter display device, comprising:

at least one emitter having a layer that releases electrons at a predetermined energy level, wherein the layer affects the image force so as to enhance the releasing of electrons and the layer limits the outgassing so as to inhibit degradation of the at least one emitter.

18. The device of claim 17, wherein the layer is embedded in the surface of the at least one emitter.

19. A field emitter display device, comprising:

at least one emitter having a layer that emits electrons at a predetermined energy level, wherein the layer improves the Schottky effect so as to enhance the emission of electrons and the layer limits the outgassing so as to inhibit degradation of the at least one emitter.

20. The device of claim 19, wherein the layer is embedded in the surface of the at least one emitter.

21. A field emitter display device, comprising:

at least one emitter having a layer that releases electrons at a predetermined energy level, wherein the layer decreases the dielectric effect of the at least one emitter to enhance the releasing of electrons and the layer limits the outgassing so as to inhibit degradation of the at least one emitter.

22. The device of claim 21, wherein the layer is embedded in the surface of the at least one emitter.

23. A field emitter display device, comprising:

at least one emitter having a silicon oxide layer.

24. A field emitter display device, comprising:

at least one emitter having an oxide layer that releases electrons at a predetermined energy level.

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25. A field emitter display device, comprising:

at least one emitter having an embedded silicon oxide layer.

26. The device of claim 25, wherein the embedded silicon oxide layer is formed by an implantation process.

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27. A field emitter display device, comprising:

at least one emitter having an external coating and an embedded layer that releases electrons at a predetermined energy level, wherein the embedded layer limits outgassing to inhibit degradation of the at least one emitter and enhances the releasing of electrons.

28. A field emitter display device, comprising:

at least one emitter having an external coating and an embedded layer that releases electrons at a predetermined energy level, wherein the embedded layer limits outgassing to inhibit degradation of the at least one emitter and lowers the potential barrier to enhance the releasing of electrons.

29. A field emitter display device, comprising:

at least one emitter having an external coating and an embedded layer that releases electrons at a predetermined energy level, wherein the embedded layer limits outgassing to inhibit degradation of the at least one emitter and affects the lowering mechanism so as to enhance the emission of electrons.

30. A field emitter display device, comprising:

at least one emitter having an external coating and an embedded layer that

releases electrons at a predetermined energy level, wherein the embedded layer limits outgassing to inhibit degradation of the at least one emitter and affects the image force so as to enhance the releasing of electrons.

31. A field emitter display device, comprising:

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at least one emitter having an external coating and an embedded layer that releases electrons at a predetermined energy level, wherein the embedded layer limits outgassing to inhibit degradation of the at least one emitter and improves the Schottky effect so as to enhance the emission of electrons.

32. A field emitter display device, comprising:

at least one emitter having an external coating and an embedded layer that releases electrons at a predetermined energy level, wherein the embedded layer limits outgassing to inhibit degradation of the at least one emitter and decreases the dielectric effect of the at least one emitter to enhance the releasing of electrons.

33. A field emitter display device, comprising:

at least one emitter having an implantation that releases electrons at a predetermined energy level, wherein the implantation reduces the potential barrier to enhance the releasing of electrons and inhibits degradation of the at least one emitter in the presence of the outgassing; and

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a light-emitting target that radiates when the released electrons strike the light-emitting target.

34. The device of claim 33, wherein the light-emitting target is coated with luminescent matter.

35. The device of claim 33, wherein the light-emitting target is coated with phosphorescent matter.

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36. A video display, comprising:

a display screen for showing a video image; and

an array of field emission devices capable of forming the video image, wherein the array of field emission devices comprises:

at least one emitter having an implantation that releases electrons at a predetermined energy level, wherein the implantation reduces the dielectric effect of the at least one emitter and is stable in the presence of the outgassing; and

a light-emitting target that radiates when the released electrons strike the light-emitting target.

37. A method for enhancing the emission of electrons in a field emitter device, comprising:

forming at least one tip behaving as cathodes in the field emitter device, the at least one tip emitting electrons at a predetermined energy level;

forming at least one phosphorescent target behaving as anodes in the field emitter device, the at least one phosphorescent target receptive to the emitted electrons; and

implanting the at least one tip with a layer having a reduced dielectric constant, the layer enhancing the emission of electrons and limiting the outgassing so as to inhibit degradation in the field emitter device.

38. The method of claim 37, wherein the method proceeds in the order presented.

39. The method of claim 37, wherein implanting the at least one tip with a layer comprises implanting with the layer that affects the image force so as to enhance the emission of electrons.

40. The method of claim 37, wherein implanting the at least one tip with a layer comprises implanting with the layer that improves the Schottky effect so as to enhance the emission of electrons.

41. A method of forming a field emission device, comprising:

forming an emitter tip on a substrate;

forming a substance on at least a portion of the emitter tip, wherein the substance decreases the dielectric effect of the emitter tip; and

forming an anode opposite the emitter tip.

42. The method of claim 41, wherein forming the substance comprises forming the substance that lowers the potential barrier to enhance the emission of electrons.

43. The method of claim 41, wherein forming the substance comprises forming the substance that affects the image force so as to enhance the emission of electrons.

44. The method of claim 41, wherein forming the substance comprises forming the substance that improves the Schottky effect so as to enhance the emission of electrons.

45. A method of forming a field emission device, comprising:

forming an emitter tip on a substrate;

implanting a substance to form a compound in at least a portion of the emitter tip, wherein the implanting reduces the dielectric effect of the emitter; and

forming an anode opposite the emitter tip.

46. The method of claim 45, wherein implanting the substance to form the compound comprises implanting the substance that lowers the potential barrier to enhance the emission of electrons.

47. The method of claim 45, wherein implanting the substance to form the compound comprises implanting the substance that affects the image force so as to enhance the emission of electrons.

48. The method of claim 45, wherein implanting the substance to form the compound comprises implanting the substance that improves the Schottky effect so as to enhance the emission of electrons.

49. A method of forming a field emission device, comprising:

forming an emitter tip on a substrate;

implanting oxygen ions in at least a portion of the emitter tip; and

forming an anode opposite the emitter tip.

50. The method of claim 49, wherein implanting oxygen ions comprises implanting O^- ions.

51. The method of claim 49, wherein implanting oxygen ions comprises implanting O^{2-} ions.

52. The method of claim 49, wherein implanting oxygen ions comprises implanting O^{-}_2 ions.

53. The method of claim 49, wherein implanting oxygen ions comprises implanting a species of oxygen ions to form a silicon dioxide compound.

54. A method of forming a field emission device, comprising:

forming an emitter tip on a substrate;

implanting a predetermined dose of oxygen ions in at least a portion of the emitter tip; and

forming an anode opposite the emitter tip.

55. The method of claim 54, wherein implanting the predetermined dose of oxygen ions comprises implanting the predetermined dose of oxygen ions on the order of about 10^{17} per square centimeter.

56. The method of claim 54, further comprising annealing to stabilize the oxygen ions embedded in the emitter tip.

57. The method of claim 56, wherein annealing to stabilize the compound comprises annealing through a rapid thermal process using nitrogen.

58. The method of claim 56, wherein annealing occurs in a temperature greater than about 850 degrees Celsius.

59. The method of claim 56, wherein annealing occurs in a temperature less than about 1000 degrees Celsius.

60. The method of claim 56, wherein annealing occurs in a temperature greater than about 850 degrees Celsius and less than about 1000 degrees Celsius.

61. A method of forming a field emission device, comprising:

forming an emitter tip on a substrate;

implanting a predetermined dose of oxygen ions to form a compound in at least a portion of the emitter tip;

annealing to stabilize the compound embedded in the emitter tip; and

forming an anode opposite the emitter tip.

62. The method of claim 61, wherein implanting the predetermined dose of oxygen ions comprises implanting a desired dose of oxygen ions on the order of about 10^{17} per square centimeter.

63. The method of claim 61, wherein annealing to stabilize the compound comprises annealing through a rapid thermal process using nitrogen.

64. The method of claim 61, wherein annealing to stabilize the compound comprises annealing in a temperature greater than about 850 degrees Celsius and less than about 1000 degrees Celsius.

65. The method of claim 61, wherein the method proceeds in the order presented.

66. A method of forming a field emission device, comprising:

forming an emitter tip on a substrate;

implanting oxygen ions at a predetermined depth greater than about 50 Angstroms and less than about 100 Angstroms from the surface of the emitter tip;

annealing to stabilize the oxygen ions embedded in the emitter tip; and

forming an anode opposite the emitter tip.

67. The method of claim 66, wherein implanting oxygen ions comprises implanting a desired dose of oxygen ions on the order of about 10^{17} per square centimeter.

68. The method of claim 66, wherein annealing to stabilize the compound comprises annealing through a rapid thermal process using nitrogen.

69. The method of claim 66, wherein annealing to stabilize the compound comprises annealing in a temperature greater than about 850 degrees Celsius and less than about 1000 degrees Celsius.

70. A method of forming a field emission device, comprising:

forming an emitter tip on a substrate;

implanting a substance on at least a portion of the emitter tip so as to form an implanted layer having a relative dielectric constant less than about the relative dielectric constant of the emitter tip;

annealing to stabilize the implanted layer in the emitter tip; and

forming an anode opposite the emitter tip.

71. The method of claim 70, wherein implanting a substance comprises implanting a desired dose of oxygen ions on the order of about 10^{17} per square centimeter.

72. The method of claim 70, wherein annealing to stabilize the compound comprises annealing through a rapid thermal process using nitrogen.

73. The method of claim 70, wherein annealing to stabilize the compound comprises annealing in a temperature greater than about 850 degrees Celsius and less than about 1000 degrees Celsius.

74. The method of claim 70, wherein implanting the substance comprises implanting at a depth greater than about 50 Angstroms and less than about 100 Angstroms.

75. A method of forming a field emission device, comprising:

forming an emitter tip containing silicon on a substrate;

implanting a dose of oxygen ions of about 10^{17} per square centimeter on at least a portion of the emitter tip so as to create a relative dielectric constant of the emitter tip greater than about 3.0 and less than about 12;

annealing in nitrogen to form a layer of silicon oxide embedded at a depth

greater than about 50 Angstroms and less than about 100 Angstroms in the emitter tip using a rapid thermal process at a temperature greater than about 850 degrees Celsius and less than about 1000 degrees Celsius; and

forming an anode opposite the emitter tip.

76. A method of forming a field emission device, comprising:

forming an emitter tip containing silicon on a substrate;

implanting a dose of oxygen ions of about 10^{17} per square centimeters in at least a portion of the emitter tip;

annealing in nitrogen to form a layer of silicon dioxide embedded at a depth greater than about 50 Angstroms and less than about 100 Angstroms in the emitter tip using a rapid thermal process at a temperature greater than about 850 degrees Celsius and less than about 1000 degrees Celsius; and

forming an anode opposite the emitter tip.

77. The method of claim 76, wherein implanting the dose of oxygen ions comprises implanting oxygen ions to form a superoxide compound.

78. A method of forming a field emission device, comprising:

forming an emitter tip on a substrate;

implanting a species of nitrogen at greater than about 50 Angstroms and

less than about 100 Angstroms from the surface of the emitter tip;

annealing to form a compound containing the species of nitrogen embedded in the emitter tip; and

forming an anode opposite the emitter tip.

79. A method of forming a field emission device, comprising:

forming an emitter tip on a substrate;

implanting ionic nitride on at least a portion of the emitter tip;

annealing to form a compound containing nitride embedded in the emitter tip; and

forming an anode opposite the emitter tip.

80. A method of forming a field emission device, comprising:

forming an emitter tip on a substrate;

depositing a layer of low relative dielectric constant material over the emitter tip so as to enhance the emission of electrons;

depositing a layer of a substance over the layer of low relative dielectric constant material; and

forming an anode opposite the emitter tip.

81. The method of claim 80, wherein depositing the layer of low relative

dielectric constant material comprises depositing through a uniform-step-coverage technique to form a uniform thickness layer of the low relative dielectric constant material.

82. The method of claim 80, wherein depositing the layer of low relative dielectric constant material comprises depositing a layer of a material having a dielectric constant less than about 12.

83. The method of claim 80, wherein depositing the layer of the substance comprises depositing to form a thickness greater than about 50 Angstroms and less than about 100 Angstroms.

84. The method of claim 80, wherein depositing the layer of the substance comprises depositing an amorphous and continuous film of the substance.

85. The method of claim 80, wherein depositing the layer of the substance comprises depositing an amorphous and continuous film of silicon.